

ABSTRACT OF THE DISCLOSURE

Described is a method for fabricating a semiconductor device having an FET of a trench-gate structure obtained by disposing a conductive layer, which will be a gate, in a trench extended in the main surface of a semiconductor substrate, wherein the upper surface of the trench-gate conductive layer is formed higher than the main surface of the semiconductor substrate and the trench gate conductive layer and gate insulating film are formed in the trench and over the main surface of the semiconductor substrate at the periphery of the trench. In this method, a trench wherein a trench-gate is to be formed is formed on the main surface of the semiconductor substrate with the insulating film formed thereon with a mask; and the side surface of the insulating film is caused to retreat from the upper end of the trench by isotropic etching, whereby a gate insulating film and a conductive layer to be the trench gate are formed in the trench and over the main surface of the semiconductor substrate at the periphery of the trench. According to the present invention, occurrence of a source offset and damage of a gate insulating film can be prevented.